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**ENGINEERING STANDARDS UPDATE**  
Standards are serious business, but this newsletter isn't.

**Topics this month:**

- **Training & Qualification**
- **LANL Standards Issued in April**
- **MSS Document Changes**
- **DOE Technical Standards Action**
- **National Standards Action**
- **When Good Conduct of Engineering Isn't Followed**

The LANL Engineering Standards: <http://engstandards.lanl.gov/>

**Note:** This newsletter has hyperlinks all over but the blue/underline formatting may not show. Please hover your cursor where you might expect one.



Building Safety Month is sponsored by the ICC to remind the public about the critical role of our communities' largely unknown protectors of public safety—our local code officials—who assure us of safe, efficient and livable buildings that are essential to America's prosperity. This year's theme encourages all Americans to raise awareness about the importance of safe and resilient construction; fire prevention; disaster mitigation, and new technologies in the construction industry. (No different at LANL).

## **TRAINING & QUALIFICATION**

### **Training first, of "course"!**

#### **Course 39564, Safety Basis for Engineers, on Thursday, May 6th, 1–3 PM, Webex**

Registrants will receive Webex instructions prior to start. POC: Joy Getha, 5-9586, [jlgetha@lanl.gov](mailto:jlgetha@lanl.gov).

Has lots of TA55 examples which for some may be like hair of the dog to a Cinco de Mayo hangover.

#### **ESM Chapter 21 Software -- Overview and Owners Courses – Express Interest**

A few of you are new "Owners" of nuclear safety or other ML-1, -2, or -3 software (installed in a system, or maybe for design/analysis). Most people in that situation are or soon will be subject to ESM Chapter 21 Software and need to take required training on the chapter. So...if you, in fact, need live training, please self-assign for the course(s) below so we have a waitlist (or

waitlist via Yolanda per below). If you're not sure what you need, contact me (5-8475) or SME/instructor Joy Getha, 5-9586, [jlgetha@lanl.gov](mailto:jlgetha@lanl.gov).

- [38047](#) ESM Chapter 21 Software Overview Course (3 hrs). (RLMs and Owners)
- [34048](#) ESM Chapter 21 Software Owner's Course (3 additional hrs) (just Owners return for this)

**Registering for UTrain Courses:** Go to UTrain, search on course, select and enroll. Disenroll if you have to bail. AEs can also register; use token (CryptoCard) or contact ES training specialist Yolanda Trujillo at 664-0118 or [yjtrujillo@lanl.gov](mailto:yjtrujillo@lanl.gov) with Z number. Registrants will receive Webex instructions prior to start.

In the let them eat cake category...



Forrest Gump, while in the military, might have said that training and qualification go together like peas and carrots, so...

**Qualification (Engineering Services Div in this case)**

From Sarah Murdock: A working group has been stood up for working on an ES on-boarding training program. The focus is to identify those key, high-level items new ES employees need to know to enable their future success.

**Design Engineer Qualification Standard, ESD-QS-011—NEW!!**

Finally, Engineering Project Delivery is excited to announce the issuance of this new document the CoE T&Q webpage. Credit to T&Q specialist Stan Hayes, Michael Richardson (Mr. Richardson since the promo ☺), others.

Purpose excerpt: This document describes the training and qualification requirements for the Design Engineer (DE) position...A Design Engineer translates design inputs into design output documents using design analysis and calculations, national codes and standards, DOE orders and standards, maintenance considerations, LANL best practices, and complex-wide lessons learned. Analysis performed by a DE requires sufficient detail in the purpose, method, assumptions, design input, references, and units such that a qualified engineer is able to review and understand the content and verify the adequacy of the results without recourse to the originator. A DE is assigned to a project by Engineering Management...

**LANL STANDARDS ISSUED IN APRIL**

**Engineering Standards Manual ESM STD-342-100**

Chapter	Title	Rev.	Date	Summary
Chapter 13 Welding, Joining, & NDE	Vol 3, 3-01 App. A, Welding Procedure Specifications (WPS)	–	3/31/2021	Issued WPS <a href="#">7000-XXXX- Gasx-PPE2 for natural gas plastic pipe fusing</a> . Thanks to POC David Bingham.
Chapter 16 - IBC Program	Reference: Listing of Approved IBC Testing Agencies and Fabricators	–	4/26/2021	Updated

**Master Specs STD-342-200**

Two notes: Page numbering is being changed to “Section – X of Y” format (instead of just page number) beginning with this month’s revisions. Thanks to Mary Morse for the suggestion!

Seismic matters: Last month the ESM Structural Chapter revision was discussed herein, noting the fairly significant reduction in the Lab’s seismic hazard numbers and that certain commercial-type buildings designed to Section II will now qualify for use of Seismic Design Category C (provided several provisions are met) rather than the more-demanding SDC D.

In April, several Master Specs were updated for the above by POC Glen Pappas (see below). In early May the following are expected to be approved and posted: most of the remaining affected specs, the spec-editing flowchart and guides, the Statement of Special Inspections, and the new companion reference for Section II that compiles the requirements differences between SDC-C and the default SDC-D in the IBC and its invoked standards.

Spec Number	Rev.	Spec Title	Effective	Summary of Latest Revision
01 4216	3	Definitions	4/28/2021	Rev 3: CMTR revised; r2, also April: CoC revised; other minor changes (follows IQPA's lead by using Cert of <u>Conformance</u> for ML-1/2 and <u>Compliance</u> for other situations like IBC).
Thanks to Structural Specs POC Glen Pappas:				
01 8734	1	Seismic Qualification of Nonstructural Components (IBC)	4/29/2021	Updated for compliance with earthquake loads in ESM Ch. 5 Sect. II R11 (i.e., new accelerations for SDC D and new SDC C and its accelerations)
03 3001	15	Reinforced Concrete	4/28/2021	Restored exterior mixes 15 and 15X with minor adjustment; updated for compliance with earthquake loads in ESM Ch. 5 Sect. II R11 (i.e., both SDC C and D are now addressed/included)
09 5100	6	Acoustical Ceilings	4/29/2021	Updated for compliance with earthquake loads in ESM Ch. 5 Sect. II R11 (i.e., new accelerations for SDC D and new SDC C and its accelerations)
09 6900	4	Access Flooring	4/29/2021	
13 3419	6	Metal Building Systems	4/30/2021	
21 1313	11	Wet-Pipe Sprinkler Systems	4/29/2021	

**STD Drawings and Details STD-342-400**

Chapter	Dwg. #	Sheet	Rev.	Title	Date
Thanks to Alex Olsen, Lewis Valdez, Rick Baca, POC Eric Stromberg, and CAD Stds POC8 Scott Richardson for these new Standard Details! <a href="https://engstandards.lanl.gov/Dwgs_Details.shtml#electrical">https://engstandards.lanl.gov/Dwgs_Details.shtml#electrical</a>					
Chapter 7 - Electrical	D5020-2	1	0	Haworth Furniture Wiring Diagram -- NEW	4/27/2021
		2	0	Herman Miller Furniture Wiring Diagram -- NEW	4/27/2021

I have a pencil that used to be owned  
by William Shakespeare.  
But he chewed it a lot. Now I can't tell  
if it's 2B or not 2B.

### **MSS DOCUMENT CHANGES**

Below are recent changes issued by Maintenance and Site Services Division per Jeremy vonHarders. The first ones are work control related and O&M/PMI-related follow those.

#### **AP-WORK-002: Work Planning Rev 22 (~4/12)**

- Revised to incorporate the revisions to P101-22, Penetration Operations. Deleted Section 5.6 as Construction Management has their own criteria not applicable to P950.

Access: [https://logistics.lanl.gov/MSS/\\_layouts/15/WopiFrame.aspx?sourcedoc=/MSS/Policy%20%20Procedures/AP-WORK-002.pdf&action=default](https://logistics.lanl.gov/MSS/_layouts/15/WopiFrame.aspx?sourcedoc=/MSS/Policy%20%20Procedures/AP-WORK-002.pdf&action=default)

#### **MSS Guide 10: MSS Job Hazard Analysis Rev 7**

- Added JHA for ventilation where continued fan rotation due to windage mechanical blocking devices.

Access: [https://logistics.lanl.gov/MSS/\\_layouts/15/WopiFrame.aspx?sourcedoc=/MSS/Policy%20%20Procedures/MSS-GUIDE.010.pdf&action=default](https://logistics.lanl.gov/MSS/_layouts/15/WopiFrame.aspx?sourcedoc=/MSS/Policy%20%20Procedures/MSS-GUIDE.010.pdf&action=default)

#### **AP-WORK-004: Work Performance Rev 17 (~4/28/2021)**

- Added options to many steps to perform the process in either MWP or on paper. Changed step 28 from shall to can. Clarified step 36.

### **O&M Criterion/PMI Changes**

Operation and Maintenance Criterion and related Preventative Maintenance Instruction (PMI) are standards about which system engineers should be familiar. Implementation is required 30 days from issue date for non-nuclear facilities, 60 days for nuclear facilities. Questions? Contact the document author.

Use Internet Explorer to access them on the SharePoint site if you have issues. Access to all such documents when no direct link is shown below: [https://logistics.lanl.gov/MSS/\\_layouts/15/start.aspx#/Policy%20%20Procedures/Forms/Public.aspx](https://logistics.lanl.gov/MSS/_layouts/15/start.aspx#/Policy%20%20Procedures/Forms/Public.aspx)

**PMI 721-C r3: Wet Automatic Sprinkler Systems Six Month Inspection and Testing (~4/16)**

- Copied/edited from latest rev of 721-D in order to better align the steps

Access: <https://logistics.lanl.gov/MSS/layouts/15/WopiFrame.aspx?sourcedoc=/MSS/PMI/721-CWD.pdf&action=default>

**O&M 725 Deluge Sprinkler Systems Rev 6 (~4/19):**

- Updated O&M to 2020 NFPA 25, to include frequency changes in alignment with the Equivalency Approval to DOE O 420.1C
- Updated to fix a finding from the 2019 Fire Protection ITM Self Inspection: IM-2020-135.
- Added/Deleted some Baseline Operational Criteria
- Major reformatting of Section 6.0 to match template
- Added Table 6-2 to summarize ITM frequencies

Access: <https://logistics.lanl.gov/MSS/layouts/15/WopiFrame.aspx?sourcedoc=/MSS/Policy%20%20Procedures/725.pdf&action=default>

**PMI 727-M: TA-11, Building 75 Fike Panel Disable/Enable of Clean Agent System**  
**PMI 727-N: TA-22, Building 34 Fike Panel Disable/Enable of Clean Agent System**

Access: <https://logistics.lanl.gov/MSS/Policy%20%20Procedures/Forms/Public.aspx>

**DOE TECHNICAL STANDARDS ACTION**

Tech Stds Program [postings](#) in the past month:

**DOE-STD-1192-2021 Security Risk Management (OUO)**

“This Standard provides vulnerability assessment (VA) analysts and other security professionals accepted processes for conducting VAs and security risk assessments (SRAs)...” It must be handled as Official Use Only (OUO), thus, will not be available on the Technical Standards Program Website.

**NATIONAL STANDARDS ACTION**

LANL’s [IHS Eng Workbench](#) online codes & standards subscription news:

Document number: NEMA WD 1

Publication Date: 1999

Reaffirmed/Reapproved Date: (R 2020)

Title: **General Color Requirements for Wiring Devices**

Type of Change: **Reaffirmed/Reapproved**

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**WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED**

Maybe this will help draw attention to above topic “ESM Chapter 21 Software -- Overview and Owners Courses – Express Interest?”



Photo by Sean O'Kane | The Verge

**Bad software is turning some Mustang Mach-Es into 'electric bricks'**

Affected owners need a dealer to fix it

<https://www.theverge.com/2021/4/8/22373903/mustang-mach-e-deep-sleep-12v-battery-jump-start>



This next one isn't really about bad engineering. Civil engineers want to fix things, just need budget.

**Close to failing: American infrastructure scores a C- on new ASCE report card**

The American Society of Civil Engineers (ASCE) released its quadrennial Report Card for America's Infrastructure. The United States scored a C- overall grade, up from a D+ in 2017; however, the gap has risen from \$2.1 trillion over 10 years in the last report to \$2.59 trillion in the latest study, meaning a funding gap of \$259 billion per year.

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<https://www.iccsafe.org/building-safety-journal/bsj-dives/close-to-failing-american-infrastructure-scores-a-c-on-new-asce-report-card/>

#### **LAST MONTH'S UPDATE TOPICS**

Miss an issue? The archive is at "Monthly Update" on the Standards homepage. Last month's topics:

- **New Institutional Facilities FOD Splitting from Utilities and Institutional FOD April 5; Kevin O'Donnell to lead ES-UI**
- **Training & Qualification**
- **LANL Standards Issued in March**
- **Engineering Processes News**
- **O&M Criterion Changes**
- **DOE Technical Standards Action**
- **National Standards Action**
- **When Good Conduct of Engineering Isn't Followed**

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